

REMARKS

Applicants amend the specification to correct some minor typographical errors.
No new matter is added.

Applicants acknowledge the allowance of claims 13-20. Claims 1-20 remain pending in the application.

Reexamination and reconsideration are respectfully requested in view of the following Remarks.

CLAIM OBJECTIONS

The Office Action objects to claims 1-3 and 13, in claims 1-3 objecting to the phrase "including over the conductive layer," and in claim 13 objecting to the phrase "including over the structure."

Applicants respectfully traverse all of the claim objections.

In each of the claims 1-3, the phrase "including over the conductive layer" clearly and accurately describes a characteristic of how the polishing protection layer is formed - on the substrate, including over the conductive layer. Similarly, in claim 13, the phrase "including over the structure" clearly and accurately describes a characteristic of how the conductive layer is formed - on the substrate, including over the structure.

Accordingly, Applicants respectfully request that the Examiner withdraw the objections to claims 1-3 and 13.

35 U.S.C. § 102 & 103

The Office Action rejects claims 1-6 under 35 U.S.C. § 102 over Gray U.S. Patent 4,964,946 ("Gray"), and claims 7-12 under 35 U.S.C. § 103 over Gray in view of Wolf, "Silicon Processing for the VLSI Era," Vol. 2, p. 238 (1990) ("Wolf").

Applicants respectfully traverse those rejections for at least the following reasons.

Claim 1

Among other things, the method of claim 1 includes forming a conductive layer on a substrate such that the conductive layer protrudes above an upper surface of the substrate, and forming a polishing protection layer on the substrate, including over the conductive layer.

Applicants respectfully submit that no such combination of features is disclosed by Gray. The Office Action identifies element 10 in Gray as supposedly corresponding to the recited conductive layer. The Office Action fails to identify anything in Gray as supposedly corresponding to the recited substrate. Gray does not show or disclose any such substrate. Gray incorporates by reference U.S. Patent 4,307,507, ("the '507 Patent") but it is clear in the '507 Patent that no substrate exists at the time that the structure shown in FIG. 1A of Gray is created (see FIG. 12 and col. 3, lines 26-27 of the '507 Patent).

Accordingly, nothing in Gray discloses or suggests any step of "forming a polishing protection layer on the substrate, including over the conductive layer."

So, for at least this reason, Gray does not disclose the method of claim 1.

Also, among other things, the method of claim 1 includes etching away part of the exposed conductive layer to form a conductive pattern on the substrate.

Applicants respectfully submit that no such combination of features is disclosed by Gray. The Office Action states that such a feature is shown in FIG. 1G and at col. 2, lines 9-65.

Applicants respectfully disagree. Applicants respectfully submit that neither FIG. 1G nor anything in the cited text discloses that any portion of the exposed conductive layer is etched away.

Accordingly, for at least the foregoing reasons, Applicants respectfully submit that claim 1 is patentable over Gray.

Claims 2-6

Claims 2-6 depend from claim 1 and are deemed patentable for at least the reasons set forth above with respect to claim 1.

Claims 7-12

Claims 7-12 depend from claim 1. Applicants respectfully submit that Wolf does not remedy the shortcomings of Gray as set forth above with respect to claim 1 and are deemed patentable for at least the reasons set forth above with respect to claim 1, and for the following additional reasons.

Claim 7

Among other things, the method of claim 7 includes removing only some of the step compensation layer and the polishing protection layer using a first planarization process.

The Office Action fairly admits that Gray does not disclose such a feature, but states that Wolf “teaches that a CMP process together with an etch-back process can be very effective in rapidly planarizing elevated surface features.”

Applicants respectfully traverse the proposed modification of Gray with the cited teaching from Wolf as lacking any suggestion or motivation in the art, and as being contrary to the fundamental purposes of Gray. The cited text from Wolf may indeed teach that “a CMP process together with an etch-back process can be very effective in rapidly planarizing elevated surface features,” **but** there is no motivation to modify Gray to remove only some of the step compensation layer and the polishing protection layer using a first planarization process. That is, as shown in FIG. 1G, Gray clearly does not want to planarize the layers 12 and 14, identified in the Office Action as supposedly corresponding to the polishing protection layer and the step compensation layer. Indeed, to the contrary, it is Gray’s primary objective to form an **aperture** in layers 12 and 14 for exposing the sharp field emitter 11 in layer 10, while covering the remainder of the layer 10. The Office Action does not (and indeed cannot) explain why one would have been motivated to modify Gray to planarize layers 12 and 14, when Gray’s whole objective is to form apertures in layers 12 and 14. So, as noted above, Applicants respectfully traverse the proposed modification of Gray with Wolf’s teachings.

Accordingly, for at least these additional reasons, Applicants respectfully

submit that claim 7 is patentable over the prior art.

Claim 9

Among other things, the method of claim 9 includes etching the step compensation layer, the polishing protection layer and the conductive layer using a second planarization process.

As explained above with respect to claim 7, the Office Action does not (and indeed cannot) explain why one would have been motivated to modify Gray to planarize layers 12 and 14 for exposing the sharp field emitter 11 in layer 10, while covering the remainder of the layer 10, when Gray's whole objective is to form apertures in layers 12 and 14. So, as noted above, Applicants respectfully traverse the proposed modification of Gray with Wolf's teachings.

Accordingly, for at least these additional reasons, Applicants respectfully submit that claim 9 is patentable over the prior art.

Claim 11

Among other things, the method of claim 11 includes removing a remaining portion of the polishing protection layer from around the conductive pattern.

The Office Action fairly admits that Gray does not disclose such a feature. The Office Action does not cite anything that would have lead one at the time the invention was made to modify Gray to include such a feature. The Office Action cites Wolf as disclosing that a wet etching process could be used to remove the remaining portion of the polishing protection layer from around the conductive pattern. But neither Wolf, nor any other reference, provides a suggestion or motivation to modify Gray to remove the remaining portion of the polishing protection layer from around the conductive pattern in the first place!

That is, as shown in FIG. 1G, Gray clearly does not want to remove the remaining portion of the polishing protection layer from around the conductive pattern. Indeed, to the contrary, it is Gray's primary objective to form an aperture for exposing the sharp field emitter 11 in layer 10, while covering the remainder of the layer 10. The Office Action does not (and indeed cannot) explain why one would have been

motivated to modify Gray to remove a remaining portion of the polishing protection layer from around the conductive pattern, when this is contrary to Gray's objective. So, as noted above, Applicants respectfully traverse the proposed modification of Gray with Wolf's teachings.

Accordingly, for at least these additional reasons, Applicants respectfully submit that claim 11 is patentable over the prior art.

CONCLUSION


In view of the foregoing explanations, Applicants respectfully request that the Examiner reconsider and reexamine the present application, allow claims 1-20, and pass the application to issue. In the event that there are any outstanding matters remaining in the present application, the Examiner is invited to contact Kenneth D. Springer (Reg. No. 39,843) at (571) 283-0720 to discuss these matters.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 50-0238 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17, particularly extension of time fees.

Respectfully submitted,

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